R-3201
ALKYLATOR
32-P1-EF-014 10999 FC-32030
32-P1-EF-005 1541 FC-32013
32-P1-EF-012 11289 PY-32900
32-P1-EF-014 1455 PV-32002B
32-P1-EF-014 9089 PV-32002A
32-P1-EF-006 1403 FC-32021
SIPHON BREAKER
NNF
(DO NOT POCKET)
FOR START UP
P-32102-6"-NBZ3-HC38.0 mm-NT
PACKING
Trim: TR-32001-NBZ3 HAP-HC
HHLL=27090.0 mm
HLL=26590.0 mm
NLL=25590.0 mm
LLL=22890.0 mm
LLLL=22390.0 mm
BED 8
BED 7
BED 6
BED 5
BED 4
BED 3
BED 2
BED 1
SPARGER
MD TRAYS
HHLL = 5650MM
HLL = 5150MM
NLL = 3650MM
LLL = 900MM
LLLL = 400MM
PSET=28.00 kg/cm^2g
PRD 32001
PRD 32041
FLARE 3230 32-P1-EF-112
FLARE 13872 32-P1-EF-112
V-32030-24"-EBZ-HC38.0 mm-ET
V-32107-24"-EBZ-HC38.0 mm-ET
P-32004-24"-NBZ3-HC51.0 mm-NT
ALKYLATOR EFFLUENT 1336 32-P1-EF-005 E-3202
P-32528-16"-NBZ3-HC51.0 mm-ET
P-32008-12"-NBZ3-HC38.0 mm-NT
ALKYLATOR REFLUX 32-P1-EF-006 1215 P-3202A/B & P-3203A/B
P-32531-10"-NBZ3-HC38.0 mm-NT
P-32020-10"-XD1JA-HC51.0 mm-NT
FINISHING REACTOR BLOWDOWN 32-P1-EF-016 1328 R-3203
2 PHASE
FREE DRAINING
NH-32001-8"-N1-HC38.0 mm-NT
STEAM / NITROGEN PURGE 32-P1-EF-109 1251 E-3226
SHUT-DOWN PURGING
ALKYLATOR OVERHEAD PRESSURE CONTROL
OPEN
CLOSED
PV-32013
PV-32002B
0
100%
PC-32002C OUTPUT
P-32261-4"-XB2A-N -NT
C2 FEED BYPASS 32-P1-EF-002 10846 ETHYLENE FEED
P-32205-12"-NBZ3-N -NT
P-32001-12"-XB2A-N -NT
ETHYLENE 32-P1-EF-002 1409 FV-32005
ETHYLENE 32-P1-EF-002 1424 FV-32007
P-32203-12"-NBZ3-N -NT
ACTUAL ETHYLENE FLOW RATE 32-P1-EF-002 1399 FY-32003A
ETHYLENE 1711 32-P1-EF-002 FV-32006
P-32204-12"-NBZ3-N -NT
ETHYLENE 1712 32-P1-EF-002 FV-32008
P-32202-12"-NBZ3-N -NT
CWR CWR-32027-0.75"-A-N -NT 5587 33-P1-EF-553
P-32307-0.75"-NBZ3-HC38.0 mm-ET
32-P1-EF-018 1560 SC-3-3208
CWS CWS-32027-0.75"-A-N -NT 5588 33-P1-EF-553
P-32041-20"-NBZ3-HC51.0 mm-NT
TRANSALKYLATOR EFFLUENT P-32036-8"-XD1JA-HC51.0 mm-NT 1367 32-P1-EF-010 R-3202
P-32534-12"-NBZ3-HC51.0 mm-NT
P-32040-18"-NBZ3-HC64.0 mm-NT
DH-32116-2"-E-N -NT
WASTEWATER 4843 33-P1-EF-534 EB/SM SEWER
common blind
P-32042-4"-XD1JA-PP38.0 mm-NT
FINISHING REACTOR VENT 32-P1-EF-016 1397 R-3203
P-32201-12"-NBZ3-N -NT
ETHYLENE 32-P1-EF-002 1396
P-32155-24"-NBZ3-HC64.0 mm-NT
ALKYLATOR BTMS 32-P1-EF-003 1377 F-3201
32-P1-EF-004 1245 FC-32010
1404 32-P1-EF-018 FC-32001
First line break
P-32027-10"-NBZ3-HC64.0 mm-NT
ALKYLATOR BTMS 1189 32-P1-EF-018 C-3201
ALKYLATOR BTMS P-32037-20"-NBZ3-HC64.0 mm-NT 32-P1-EF-003 1366 P-3201A/B
DC-31
VC-31
EB/SM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

DIMENSION: , 4700.0 mm ID X 48400.0 mm T-T
DESIGN P AND T: 26.97 kg/cm^2g AND 300.0 C
MINIMUM P AT T: /FV
TYPE AND MATL OF TRAY: - 410 S.S.
MATERIAL OF CONSTRUCTION: CS
INSULATION TYPE AND THICK: HC - 64.0 mm (SHELL) - (HEAD)
EXTERNAL AT 300.0 C

13. DELETE.
14. DURING PG ETHYLENE MODE ALKYLATOR PRESSURE WILL BE CONTROLLED BY PC-32030
15. HIGH LEVEL ALARMS ON LI32003X/Y/Z ARE IPL ALARMS

NOTES

1. ~~TOP OF SEAL LOOP TO BE AT LEAST 5M ABOVE HLL IN R-3201.~~
2. TO MEASURE THE LIQUID TEMPERATURE FROM TRAY TO DOWNCOMER.
3. SYMMETRICAL PIPING.
4. COMMON ALARM OF EACH HEAT TRACE LOCAL PANEL IS PROVIDED ON DCS.
5. FFI-32004 INDICATES ALKYLATE TOTAL ETHYLENE FLOW RATIO IN WEIGHT.
6. CONTROL VALVE STATION TO BE LOCATED AT GRADE & AT BOTTOM OF SEAL LOOP.
7. HEIGHT BASED ON PUMP P-3201A/B NPSH REQUIREMENTS.
8. DELETED.
9. VALVE TO BE AT MINIMUM DISTANCE FROM SC.
10. ROUTE LEVEL BRIDLE DRAINS TO EB/SM SEWER AND VENT TO FLARE.
11. MAINTENANCE VALVE FOR STEAMING COLUMN.
12. DOWNSTREAM OF SPECTACLE BLIND SHALL BE SLOPED.

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
10	14.Apr.-2021	REVISED AS PER MOC JCP-P-9035	MRH	CSK	HBK
09	02.Jul.-2015	REVISED FOR IPL IDENTIFICATION	PTB	JRB	KMN
08	10.Jul.-2014	AS PER MOC JCP-P-2222	MRH	AM	KMN
07	07.May.-2014	REVISED AS PER MOC JCP-P-P-896	HER	S.K	KMN
06	20.Feb.-2014	REVISED AS PER MOC	AM	DF	
11	01.Sep.-2022	REVISED AS PER MOC-21-5695	MRH	CSK	GMM

REFERENCE DRAWING

FOR NEW JCP LEGEND AND SYMBOLS SEE DRAWINGS:
JCP-00-P1-EF-001 THRU JCP-00-P1-EF-039
FOR EXISTING SCP LEGEND AND SYMBOLS SEE DRAWINGS:
JCP-00-D-00-00001 THRU JCP-00-D-00-00023
FOR EXISTING PORT LEGEND AND SYMBOLS SEE DRAWINGS:
JCP-00-D-00-00001P THRU JCP-00-D-00-00012P

CONFIDENTIAL INFORMATION - REPRODUCTION AND USE PROHIBITED EXCEPT IN ACCORDANCE WITH COMPANY

EPC CONTRACTOR JGC

MANAGING CONTRACTOR PARSONS E&C

JCP

	INITIAL	DATE
DRAWN	PEC	04.Feb.-2003
CHECKED		
CONTRACTOR. APPROVAL	RRC JM	
JCP APPROVAL	HU	
SCP REVISION		

TITLE
PIPING AND INSTRUMENT DIAGRAM
ALKYLATOR

SCALE NONE
PROJECT NO. 156217
CONTRACT NO. / WORK ORDER NO. D-032-1225-001 0-3515-2
DWG. NO. JCP-32-P1-EF-001
REV 11

E-3205
BENZENE COLUMN REBOILER

TEMA TYPE:	BEM	
SURFACE AREA:	961.1 m2	
DUTY:	14.80 Mkcal/hr	
	SHELL:	TUBE:
DESIGN P(kg/cm2g) AT T(C):	51.00/FV AT 426.0	7.50/FV AT 245.0
INSULATION TYPE AND THICK:	HC - 64 mm	HC - 64 mm
MATERIAL OF CONSTRUCTION:	CS	
TRIM:	XD1A	E

D-3209
BENZENE COLUMN REBOILER CONDENSATE POT

DIMENSION: 1000.0 mm ID X 3000.0 mm T-T
DESIGN P AND T: 51.00 kg/cm2g AND 426 C
MINIMUM P AT T: /FVEXTERNAL AT 426 C
MATERIAL OF CONSTRUCTION: CS
INSULATION TYPE AND THICK: HC - 64 mm

C-3201
BENZENE COLUMN

DIMENSION: 3600.0 mm ID X 31900.0 mm T-T
DESIGN P AND T: 7.00 kg/cm2g AND 245 C
MINIMUM P AT T: /FVEXTERNAL AT 245 C
TYPE AND MATL OF TRAY: 28MD+18ECMD - 410 S.S.
MATERIAL OF CONSTRUCTION: CS
INSULATION TYPE AND THICK: HC - 64 mm (SHELL)
- (HEAD)

OFF SPEC
32-P1-EF-108 1314
E-3225
P-32177-4"-NBZ3-PP38-NT
NNF
SAMPLE LINE
1560 32-P1-EF-001
R-3201
P-32307-0.75"-NBZ3-HC38-ET
DEPRESSURE/PURGE
32-P1-EF-019 1205
E-3206
P-32099-8"-XD1JA-PP38-NT
2 PHASE
1404 32-P1-EF-001
LC-32001
ALKYLATOR BTMS
1189 32-P1-EF-001
R-3201
P-32027-10"-NBZ3-HC64-NT
P-32027-20"-NBZ3-HC64-NT
FC 32001
FT 32001
FE 32001
FY 32001
FV 32001
XV 32043X
XV 32043Y
SIS
DETAIL "A" ESD-5, 32120
ESD-5 32120
25
SAMPLE EFFLUENT
1492 32-P1-EF-010
R-3202
P-32119-0.75"-XD1JA-N -NT
V-32111-2"-EBZ-N -NT
PI 32317
PCV 32317
PSET=1.00 kg/cm^2g
FI 32311
FG-32020-2"-E-N -NT
32-P1-EF-112 10770
V-32303-12"-EBZ-PP38-NT
PRD-32291 AT C-3204
10775 32-P1-EF-101
PRD-32290 AT C-3204
10793 32-P1-EF-101
PRD-32289 AT C-3204
10807 32-P1-EF-101
PRD-32028 AT C-3204
10808 32-P1-EF-101
V-32022-30"-EBZ-PP38-NT
FLARE
3206
32-P1-EF-112
PRD 32021D
PRD 32021C
PRD 32021B
PRD 32021A
PSET=7.00 kg/cm^2g
8T10
CSO
P-32502-12"-EBZ-HC38-ET
P-32845-12"-EBZ-HC38-ET
P-32844-12"-EBZ-HC38-ET
P-32846-12"-EBZ-HC38-ET
BENZENE COLUMN OVERHEAD PRESSURE CONTROL
OPEN
CLOSED
PV-32032
PV-32025
0
50%
100%
PC-32025A/B OUTPUT
PI 32029X
PI 32029Y
PI 32029Z
2OO3
ESD-5 32120
PT 32029X
PT 32029Y
PT 32029Z
DETAIL "O2"
P-32028-30"-EBZ-HC51-NT
(DO NOT POCKET)
OVHD
1201 32-P1-EF-019
E-3206 TUBE SIDE
HC 32052
PY 32025A
BIAS
PC 32025B
PC 32025A
PT 32025
STEAM OUTLET
1249 32-P1-EF-019
PC-32032
VENT TO FLARE
1485 32-P1-EF-020A
PV-32025
PT 32027
PI 32027
P-32163-8"-EBZ-HC38-NT
REFLUX
32-P1-EF-020A 1438
P-3205A/B
C-3201
Trim: TR-32322-EBZ -HC
Trim: TR-32333-E HAP-HC
MD TRAYS
P-32217-20"-EBZ-HC51-NT
P-33176-6"-EBZ-HC25-NT
FC 32036
FT 32036
FE 32036
FY 32036
FV 32036
OFF-SPEC EB
33-P1-EF-128 2746
P-3374
P-33583-6"-EBZ-HC25-NT
PDT 32028
PDI 32028
PT 32026
PI 32026
TUI 32303
TC 32062
TT 32062
PRD 32020
PSET=51.00 kg/cm^2g
TO SAFE LOCATION
V-32353-3"-E-PP25-NT
GRADE
SHS-32023-2"-XD1A-HC38-NT
SHS-32006-3"-XD1A-HC38-NT
EQUALIZING LINE
P-32106-36"-E-HC64-NT
(DO NOT POCKET)
PI 32241
HHLL=3150.0 mm
HLL=2850.0 mm
NLL=2150.0 mm
LLL=750.0 mm
LLLL=450.0 mm
BTL=9000MM
VC-30
DC-30
EB/SM
LG 32017
LT 32018
LC 32018
MAG
E-3205
Trim: TR-32039-XD1A -HC
LG 32016
P-32105-30"-E-HC64-NT
SATURATED HP STEAM
SHS-32005-8"-XD1A-HC64.0 mm-NT
1597
33-P1-EF-502
HEADER
HP CONDENSATE
13856
33-P1-EF-506
CH-32335-0.75"-XD1A-HC25-NT
SP-32S08
FC 32065
FT 32065
FE 32065
FY 32065
FV 32065
XV 32019X
XV 32019Y
CH-32005-8"-XD1A-HC51-NT
FREE DRAINING
D-3209
LLL=1350.0 mm
LLLL=400.0 mm
TW 32115
BTL=1600MM
Trim: TR-32318-XD1A -HC
LT 32017
LG 32015
LC 32017
LV 32017
LY 32017
HP CONDENSATE
1604
33-P1-EF-506
D-3311
CH-32006-6"-XD1A-HC38-NT
CH-32323-4"-XD1A-HC38-NT
WAST WATER
9181
33-P1-EF-534
EB/SM SEWER
DH-32374-2"-E-N -NT
WASTE WATER
6721
33-P1-EF-534
EB/SM SEWER
DH-32373-2"-E-N -NT
CWR
3083
33-P1-EF-553
CWR-32019-0.75"-A-N -NT
FC 32037
FT 32037
FE 32037
FY 32037
FV 32037
ESD-5 32201
P-32093-10"-E-PP38-NT
OFF-SPEC EB
1320 32-P1-EF-108
E-3225
P-32054-14"-E-HC64-NT
P-32173-14"-E-HC51-NT
CRUDE EB
1518 32-P1-EF-101
C-3204
SC-3-3204
CWS
3082
33-P1-EF-553
CWS-32019-0.75"-A-N -NT
P-32358-0.75"-E-HC38-NT
P-32826-0.75"-E-HC38-NT

INTERLOCK DESCRIPTION
(FOR INTERLOCK DESCRIPTION SEE DWG. NO. JCP-32-P1-EF- 810)

10. PIPING TO EXPAND IN A RANGE OF ORIFICE STRAIGHT LENGTH FOR UP AND DOWN STREAM.
11. DELETE.
12. PDI32028=PI32026-PI32027 (IPL)

NOTES

1. COMMON ALARM OF EACH HEAT TRACE LOCAL PANEL IS PROVIDED ON DCS.
2. DELETED.
3. HEIGHT BASED ON REBOILER HYDRAULICS AND TO PREVENT FLASHING IN FLOW ELEMENT.
4. DELETED
5. EQUALIZING LINE SIZED FOR FIRE RELIEF CONDITIONS.
6. DELETED.
7. WHERE REQUIRED, PIPING REMOVABLE SPOOLS SHALL BE PROVIDED TO ENABLE EXCHANGER HEADS REMOVAL.
8. ROUTE LEVEL BRIDLE DRAIN TO EB/SM SEWER AND VENT TO FLARE.
9. DELETED.
10. METERIAL OF 6" ELBOW UPGRADED TO A 234-WP-22-1 DURING T/A 2015 AGAINST MOC JCP-P-4164.

REV.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.	REFERENCE DRAWING
11	04.Sep.-2022	REVISED AS PER MOC-21-5695	MRH	CSK	GMM	FOR NEW JCP LEGEND AND SYMBOLS SEE DRAWINGS:
10	14.Apr.-2021	REVISED AS PER MOC JCP-P-9035	MRH	CSK	HBK	JCP-00-P1-EF-001 THRU JCP-00-P1-EF-039
09	24.Mar.-2021	REVISED AS PER MOC JCP-P-6993	MRH	CSK	MAT	FOR EXISTING SCP LEGEND AND SYMBOLS SEE DRAWINGS:
08	04.Apr.-2019	REVISED AS PER MOC JCP-P-5131	MRH	HAM	CHK	JCP-00-D-00-00001 THRU JCP-00-D-00-00023
07	01.Jan.-2017	REVISED AS PER MOC NO. JCP-P-5131	SPC	RAC	KMN	FOR EXISTING PORT LEGEND AND SYMBOLS SEE DRAWINGS:
06	08.Jul.-2016	REVISED AS PER MOC JCP-P-4164	CH	SHS	KMN	JCP-00-D-00-00001P THRU JCP-00-D-00-00012P

CONFIDENTIAL INFORMATION - REPRODUCTION AND USE PROHIBITED EXCEPT IN ACCORDANCE WITH COMPANY'S WRITTEN PERMISSION.

EPC CONTRACTOR
JGC

MANAGING CONTRACTOR
PARSONS E&C

JCP

	INITIAL	DATE
DRAWN	PEC	04.Feb.-2003
CHECKED		
CONTRACTOR. APPROVAL	RRC JM	
JCP APPROVAL	HU	
SCP REVISION		

TITLE
PIPING AND INSTRUMENT DIAGRAM
BENZENE COLUMN

SCALE	PROJECT NO.	CONTRACT NO. / WORK ORDER NO.	DWG. NO.	REV
NONE	156217	D-032-1225-018	JCP-32-P1-EF-018	11

FILE NAME : JCP-32-P1-EF-018

0-3515-2

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